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10/532,254	04/21/2005	Chris Speirs	CH02 0033 US	8626

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EXAMINER

MCCOMMAS, STUART S

ART UNIT	PAPER NUMBER
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2629

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/532,254	Applicant(s) SPEIRS, CHRIS	
	Examiner Stuart McCommas	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5 and 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-5, 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi et al. (United States Patent 6,907,314), hereinafter referenced as Negishi, in view of Liang (WO 01/54108 A1), hereinafter referenced as Liang.

Regarding claim 1, Negishi discloses a display device comprising:

a plurality of pixels arranged in an array having n rows and m columns (figure 4),
each of said pixels comprising a switching element having a gate (figure 4);

a plurality of control lines each connected to the gates of a corresponding row of said pixels and a plurality of data lines, each connected to the switching elements of a corresponding column of said pixels (figure 4);

a row driver circuit (10) that scans the n rows by means of a row voltage applied to said gate of said switching element (figure 4; figure 8);

a column driver circuit that controls the m columns by applying a column voltage to the data lines, said column voltage corresponding to image data of the pixels of selected row to be displayed (column 10 lines 34-51; figure 4).

However Negishi fails to disclose draining one of said control lines down to a given reference voltage, storing the drained charge as a stored charge, and charging

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another of said control lines to a given scan voltage using the stored charge, wherein the row driver circuit is arranged to drain said control lines by an intermediate draining of a charge from a selected one of the control lines down to an intermediate voltage level and storing the drained charge, followed by a final draining down of a remaining charge from the selected one of the control lines, said final draining including connecting of the selected one line to a common reference voltage, said final draining ending at a time T relative to said intermediate training, and wherein said row driver circuit is arranged to perform said charging by an intermediate charging, beginning at a time not substantially earlier than T , of said another selected one of the control lines to said intermediate voltage level, said intermediate charging using said stored charge, followed by a final charging of said another selected one of the control lines to said scan voltage.

In a similar field of invention Liang discloses draining one of said control lines down to a given reference voltage (V_{to}), storing the drained charge as a stored charge, and charging another of said control lines to a given scan voltage using the stored charge (page 10 lines 25-31; page 11 lines 1-19), wherein the row driver circuit is arranged to drain said control lines by an intermediate draining (t_0 - t_1) of a charge from a selected one of the control lines down to an intermediate voltage level and storing the drained charge, followed by a final draining down of a remaining charge from the selected one of the control lines (t_1 - t_3), said final draining including connecting of the selected one line to a common reference voltage, said final draining ending at a time T relative to said intermediate training (page 10 lines 25-31; page 11 lines 1-19; figure 5),

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and wherein said row driver circuit is arranged to perform said charging by an intermediate charging, beginning at a time not substantially earlier than T (figure 5), of said another selected one of the control lines to said intermediate voltage level, said intermediate charging using said stored charge, followed by a final charging of said another selected one of the control lines to said scan voltage disclosed in page 4 lines 1-33 and in page 5 lines 1-5 and in page 10 lines 25-31 and in page 11 lines 1-19 and exhibited in figure 1 and in figure 3 and in figure 5.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Negishi with Liang by specifically providing draining one of said control lines down to a given reference voltage, storing the drained charge as a stored charge, and charging another of said control lines to a given scan voltage using the stored charge, wherein the row driver circuit is arranged to drain said control lines by an intermediate draining of a charge from a selected one of the control lines down to an intermediate voltage level and storing the drained charge, followed by a final draining down of a remaining charge from the selected one of the control lines, said final draining including connecting of the selected one line to a common reference voltage, said final draining ending at a time T relative to said intermediate training, and wherein said row driver circuit is arranged to perform said charging by an intermediate charging, beginning at a time not substantially earlier than T, of said another selected one of the control lines to said intermediate voltage level, said intermediate charging using said stored charge, followed by a final charging of said another selected one of the control lines to said scan voltage for the purpose of providing a display that saves power by

using charge sharing (page 4 lines 13-20).

Regarding claim 2, Negishi and Liang, the combination discloses everything as applied above, further Liang discloses wherein the row driver is arranged to perform the intermediate draining as a staged intermediate draining (figure 5), comprising a first intermediate draining of a charge from the selected one of the control lines down to a first intermediate voltage level, and a storing of the drained charge as a first stored charge, followed by second intermediate draining of a charge from the selected one of the control lines down to a second intermediate voltage level, and a storing of the drained charge as a second stored charge (page 10 lines 7-31; page 11 lines 1-13; figure 5), and wherein the row driver is arranged to perform the intermediate charging as a successive intermediate charging (figure 5), comprising a first intermediate charging of the selected another of the control lines using the first stored charge, followed by a second intermediate charging of the selected another of the control lines using the second stored charge disclosed in page 4 lines 9-19 and in page 10 lines 7-31 and in page 11 lines 1-13 and exhibited in figure 3 and in figure 5.

Regarding claim 4, Negishi and Liang, the combination discloses everything as applied above (see claim 1), further Liang discloses wherein the column voltage ranges up to a maximum column voltage and said maximum column voltage is the intermediate voltage level disclosed in page 8 lines 21-33 and in page 17 lines 15-25 and exhibited in figure 2 and in figure 5.

Regarding claim 5, Negishi and Liang, the combination discloses everything as

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applied above, further Liang discloses that the intermediate row voltage is half of the scan voltage disclosed in page 4 lines 13-19 and exhibited in figure 2 and in figure 5.

Regarding claim 7, claim 7 is interpreted and thus rejected for the reasons set forth above in the rejection of claims 1 and 2. Claims 1 and 2 describe an apparatus and claim 7 describes a method for implementing that apparatus. Thus claim 7 is rejected.

Response to Arguments

3. Applicant's arguments have been fully considered but they are believed to be answered by and therefore moot in view of the new grounds of rejection.

On pages 7-9 of Applicant's remarks, Applicant argues that Liang fails to disclose fully discharging, and that because Liang teaches concurrently charging and discharging adjacent lines, Liang does not read on the invention as claimed.

The Examiner respectfully disagrees, because the limitations argued on pages 7-8 are not in the amended claims. Further Liang does disclose concurrently charging and discharging adjacent lines, which reads on the claimed "not substantially earlier than T" in the amended claims. The Examiner is interpreting "not substantially earlier" with its broadest reasonable interpretation, that is, a time period not being more than a substantial period of time earlier than the discharging takes place. This would still allow for, as Liang discloses, concurrent charging and discharging because while the charging does happen earlier and at the same time as the discharging, one of ordinary skill would still see that time period from the beginning of the charging to the end of the discharging as not substantial, or a long period of time, given figure 5. This is because scanning of rows for a display is a very fast process itself.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart McCommas whose telephone number is (571)270-3568. The examiner can normally be reached on Monday-Friday 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571)272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stuart McCommas/
Patent Examiner
Art Unit 2629

SSM

/Alexander Eisen/

Supervisory Patent Examiner, Art Unit 2629